

REMARKSOffice Action Objections and Rejections Summary

Figure 1 has been objected to.

The abstract and disclosure of the specification have been objected to.

Claims 1, 5, and 6 have been objected to.

Claims 1-49 have been rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,507,606 of Shenoï et al. (hereinafter "Shenoï").

No claims have been allowed.

Status of Amendments

The specification has been amended to correct minor matters of form, as recommended by the Examiner. In particular, paragraph [0001] has been amended to include the filing information for related applications. Also, the abstract has been amended to provide full names for previously abbreviated references. No new matter has been added.

No claims have been amended. No claims have been added. No new matter has been added. No claims have been canceled.

The drawings have not been amended.

Drawing Objections

Figure 1 has been objected to because it does not include a designation as Prior Art. Figure 1 illustrates a graphical example of attenuation. Applicant has not admitted that Figure 1 is prior art and the content of Figure 1 does not necessarily meet the

guidelines under 35 U.S.C. §§ 102, 103 to qualify as prior art. Therefore, Applicant respectfully requests that the objection to Figure 1 be withdrawn.

Specification Objections

The specification has been objected to for improper use of abbreviations. The amendments to the specification described above address these objections. Therefore, Applicant respectfully requests that the objection to the specification be withdrawn.

Claim Objections

Claims 1, 5, and 6 stand objected to as being “improper” for the inclusion of abbreviated terms. Applicant respectfully disagrees with this objection and requests that the objection be withdrawn for the following reasons.

The Office Action fails to establish a proper basis for issuing this objection. Although the Office Action states that the recitations in claims 1, 5, and 6 are “improper” and recommends that full names be provided for certain abbreviated terms, the Office Action provides no reason as to why these claims might be improper. The unsupported assertion of impropriety is not sufficient to require the suggested amendments.

As presented, claims 1, 5, and 6 comply with the requirements set forth in 35 U.S.C. § 112, second paragraph, and M.P.E.P. § 608.01(o). 35 U.S.C. § 112, second paragraph, requires that the claims particularly point out and distinctly claim the subject matter which Applicant regards as his invention. M.P.E.P. § 608.01(o) requires that the meaning of every term used in the claims should be apparent from the specification. Using the abbreviated terms “DSL” (claim 1), “POTS” (claim 5), and “ATU-C” (claim 6

complies with both of these requirements because these terms are distinctly and clearly defined in the specification. In particular, the abbreviated term “DSL” is defined as Digital Subscriber Line in paragraph [0002] on page 1. The abbreviated term “POTS” is defined as Plain Old Telephone Service in paragraph [0004] on page 2. The abbreviated term “ATU-C” is defined as ADSL Transmission Unit – Central Office (meaning an ATU located at the Central Office) in paragraph [0044] on page 19. (The abbreviated term “ADSL” embedded in “ATU-C” is defined as Asymmetric DSL in paragraph [0002] on page 1.)

Given that the abbreviated terms are adequately described in the specification and comply with 35 U.S.C. § 112, second paragraph, and M.P.E.P. § 608.01(o), Applicant respectfully prefers not to amend claims 1, 5, and 6. Accordingly, Applicant requests that the objection to claims 1, 5, and 6 be withdrawn.

Claim Rejections under 35 U.S.C. § 102(e)

Claims 1-49 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Sheno. Applicant respectfully submits that claims 1-49 are patentable over the cited reference because Sheno fails to teach all of the limitations of the claims.

CLAIMS 1-17

With regard to independent claim 1, Applicant respectfully submits that claim 1 is patentable over Sheno because Sheno fails to disclose every element of the claim. In particular, Sheno fails to disclose a loop extender with diagnostic functionality. Claim 1 states:

A system for improving transmission of DSL signals over a local loop, the system comprising:

a loop extender with communications, control, and diagnostic functionality; and

a central office controller coupled to the loop extender via the local loop for controlling the loop extender.

In support of the rejection, the Office Action states:

As per claim 1 Shenoi discloses a system for improving transmission of DSL signals over a local loop, the system comprising **a loop extender with communications, control, and diagnostic functionality (figure 5 column 9 line 46 to column 10 line 22)**; and a central office controller coupled to the loop extender via the local loop for controlling the loop extender (column 7 line 54-63 and column 8 lines 56-67).

Office Action, 06/28/05, p. 4 (emphasis added).

Applicant respectfully disagrees with the Office Action's characterization of the cited reference because Shenoi does not disclose a loop extender with diagnostic functionality, as recited in claim 1.

In general, Shenoi teaches a loop extender for long ADSL subscriber lines. Shenoi, Abstract. Shenoi depicts an extender circuit with amplification circuitry and load coils. Shenoi, Fig. 5. The amplification circuitry is used for the ADSL signals and the load coils are used for the conventional voice, or POTS, signals. However, Shenoi does not disclose any structure within the loop extender that is capable of performing diagnostics on the internal components of the loop extender. In other words, Shenoi fails to disclose a loop extender with diagnostic functionality. This failure to disclose diagnostic functionality sharply contrasts with claim 1 of the present application, which includes diagnostic functionality. Applicant respectfully reserves the right to provide an affidavit or declaration under 37 C.F.R. 1.131 to swear behind Shenoi.

In view of the above distinction, Shenoi fails to teach every element of claim 1. Therefore, Shenoi does not anticipate claim 1 because Shenoi fails to disclose at least a loop extender with diagnostic functionality. Given that Shenoi does not anticipate claim 1, Applicant respectfully asserts that claim 1 is patentable over the cited reference and requests that the rejection of claim 1 under 35 U.S.C. § 102(e) be withdrawn.

Given that claims 2-17 depend from independent claim 1, Applicant respectfully asserts that claims 2-17 are also patentable over Shenoi. Accordingly, Applicant requests that the rejection of claims 2-17 under 35 U.S.C. § 102(e) be withdrawn.

CLAIMS 18-31

With regard to independent claim 18, Applicant respectfully submits that claim 18 is patentable over Shenoi because Shenoi fails to disclose every element of the claim. In particular, Shenoi fails to disclose configuring a loop extender with diagnostic functionality. Claim 18 states:

A method for improving transmission of DSL signals over a local loop, comprising the steps of:
 configuring a loop extender with communications, control, and **diagnostic functionality**; and
 controlling the loop extender with a central office controller coupled to the loop extender via the local loop.

In support of the rejection, the Office Action states:

As per claim 18 Shenoi discloses a method for improving transmission of DSL signals over a local loop, comprising the steps of **configuring a loop extender with communications, control, and diagnostic functionality (figure 5 column 9 line 46 to column 10 line 22)**; and controlling the loop extender with a central office controller coupled to the loop extender via the local loop (column 7 line 54-63 and column 8 lines 56-67).

Office Action, 06/28/05, p. 7 (emphasis added).

Applicant respectfully disagrees with the Office Action's characterization of the cited reference because Shenoi does not disclose configuring a loop extender with diagnostic functionality, as recited in claim 18. Although Shenoi teaches an extender circuit with amplification circuitry and load coils, Shenoi fails to disclose configuring a loop extender with diagnostic functionality. If a reference does not discuss a limitation then that reference cannot disclose that limitation.

In view of the above distinction, Shenoi fails to teach every element of claim 18. Therefore, Shenoi does not anticipate claim 18 because Shenoi fails to disclose at least configuring a loop extender with diagnostic functionality. Given that Shenoi does not anticipate claim 18, Applicant respectfully asserts that claim 18 is patentable over the cited reference and requests that the rejection of claim 18 under 35 U.S.C. § 102(e) be withdrawn.

Given that claims 19-31 depend from independent claim 18, Applicant respectfully asserts that claims 19-31 are also patentable over Shenoi. Accordingly, Applicant requests that the rejection of claims 19-31 under 35 U.S.C. § 102(e) be withdrawn.

CLAIMS 32-41

With regard to independent claim 32, Applicant respectfully submits that claim 32 is patentable over Shenoi because Shenoi fails to disclose every element of the claim. In particular, Shenoi fails to disclose capacitive coupling, an analog multiplexer/analog-to-digital converter (AMADC), and a diagnostic/control processor (DCP), as recited in the claim. Claim 32 states:

A system for improving transmission of DSL signals over a local loop, the system comprising:

- a central office controller, the central office controller including,
 - a first modem coupled to the local loop,
 - a processor coupled to the first modem,
 - loop extender management software executable by the processor for generating control signals,
 - an ATU-C coupled to the local loop configured to receive and transmit DSL signals, and
 - a DSLAM controller coupled to the processor and the ATU-C configured to control access to the local loop; and
- a loop extender coupled to the central office controller via the local loop, the loop extender including,
 - a POTS loading coil adapted to be coupled to the local loop for improving transmission of POTS band signals over the local loop,
 - amplification circuitry capacitively coupled to the local loop via bypass switches** for providing DSL signal amplification,
 - a second modem coupled to the local loop for receiving the control signals,
 - an AMADC coupled to the amplification circuitry** for sampling DSL signal data via diagnostic lines, and,
 - a DCP coupled to the second modem and the AMADC** for processing the control signals received via the second modem and analyzing the sampled DSL signal data from the AMADC.

(Original)

In support of the rejection, the Office Action states:

As per claim 32 Shenoi discloses . . . a loop extender coupled to the central office controller via the local loop, the loop extender including, a POTS loading coil adapted to be coupled to the local loop for improving transmission of POTS band signals over the local loop, **amplification circuitry capacitively coupled to the local loop via bypass switches** for providing DSL signal amplification, a second modem coupled to the local loop for receiving the control signals, **an AMADC coupled to the amplification circuitry** for sampling DSL signal data via diagnostic lines, and, **a DCP coupled to the second modem and the AMADC** for processing the control signals received via the second modem and analyzing the sampled DSL signal data from the AMADC (**figure 5 column 9 line 46 to column 10 line 22**).

Office Action, 06/28/05, p. 10 (emphasis added).

Applicant respectfully disagrees with the Office Action's characterization of the cited reference because Shenoi does not disclose capacitive coupling, an analog multiplexer/analog-to-digital converter (AMADC), and a diagnostic/control processor, as recited in the claim.

Although Shenoi teaches an extender circuit with amplification circuitry, the cited reference is silent as any coupling between the amplification circuit and the local loop. Rather, Shenoi only discloses the amplification circuit directly connected to the local loop without capacitive coupling. Shenoi, Figs. 4 and 5. Furthermore, Shenoi makes not reference to bypass switches, as recited in the claim. Therefore, Shenoi fails to disclose amplification circuitry capacitively coupled to the local loop via bypass switches.

Shenoi also fails to disclose an AMADC, as recited in the claim. Additionally, Shenoi is silent as to any type of sampling that may be performed by an AMADC. Therefore Shenoi fails to disclose an AMADC coupled to the amplification circuitry for sampling DSL signal data via diagnostic lines.

Shenoi also fails to disclose a DCP, as recited in the claim. Additionally, Shenoi is silent as to exemplary analyzing of sampled DSL signals that may be performed by a DCP. Therefore, Shenoi fails to disclose a DCP coupled to the second modem and the AMADC.

In view of the above distinctions, Shenoi fails to teach every element of claim 32. Therefore, Shenoi does not anticipate claim 32 because Shenoi fails to disclose at least capacitive coupling, an AMADC, and a DCP. Given that Shenoi does not anticipate claim 32, Applicant respectfully asserts that claim 32 is patentable over the cited

reference and requests that the rejection of claim 32 under 35 U.S.C. § 102(e) be withdrawn.

Given that claims 33-41 depend from independent claim 32, Applicant respectfully asserts that claims 33-41 are also patentable over Shenoi. Accordingly, Applicant requests that the rejection of claims 33-41 under 35 U.S.C. § 102(e) be withdrawn.

CLAIMS 42-48

With regard to independent claim 42, Applicant respectfully submits that claim 42 is patentable over Shenoi because Shenoi fails to disclose every element of the claim. In particular, Shenoi fails to disclose sampling DSL signals within the amplification circuitry and processing the sampled DSL signals to evaluate amplification circuitry performance. Claim 42 states:

A method for improving transmission of DSL signals over a local loop, the method comprising the steps of:
generating control signals in a central office;
transmitting the control signals and DSL signals over the local loop;
providing DSL signal amplification via amplification circuitry coupled to the local loop;
sampling DSL signals within the amplification circuitry in accordance with the control signals received by a diagnostic/ control unit coupled to the amplification circuitry; and
processing the sampled DSL signals to evaluate amplification circuitry performance. (Original)

In support of the rejection, the Office Action states:

As per claim 42 Shenoi discloses . . . **sampling DSL signals within the amplification circuitry** in accordance with the control signals received by a diagnostic/ control unit coupled to the amplification circuitry (**column 8 lines 57-67**); and **processing the sampled DSL signals to evaluate amplification circuitry performance** (**column 8 lines 57-67**).

Office Action, 06/28/05, p. 12 (emphasis added).

Applicant respectfully disagrees with the Office Action's characterization of the cited reference because Shenoï does not disclose sampling or processing, as recited in claim 42. In fact, the disclosed extender circuit is incapable of sampling DSL signals within the amplification circuitry because the extender circuit does not include an ADAMC. Similarly, the disclosed extender circuit is incapable of processing sampled DSL signals because the extender circuit does not include a DCP. Even if the extender circuit were to include a DCP, the extender circuit would still be incapable of such processing because the extender circuit is incapable of sample DSL signals without the ADAMC. Furthermore, even if the extender circuit were to sample DSL signals and process the sampled DSL signals, Shenoï is silent as to performing an evaluation of the amplification circuit. Therefore, Shenoï fails to teach sampling and processing, as recited in the claim.

In view of the above distinction, Shenoï fails to teach every element of claim 42. Therefore, Shenoï does not anticipate claim 42 because Shenoï fails to disclose at least sampling and processing, as recited in the claim. Given that Shenoï does not anticipate claim 42, Applicant respectfully asserts that claim 42 is patentable over the cited reference and requests that the rejection of claim 42 under 35 U.S.C. § 102(e) be withdrawn.

Given that claims 43-48 depend from independent claim 42, Applicant respectfully asserts that claims 43-48 are also patentable over Shenoï. Accordingly, Applicant requests that the rejection of claims 43-48 under 35 U.S.C. § 102(e) be withdrawn.

CLAIM 49

With regard to independent claim 49, Applicant respectfully submits that claim 49 is patentable over Shenoi because Shenoi fails to disclose every element of the claim. In particular, Shenoi fails to disclose means for sampling DSL signals within the amplification circuitry and means for processing the sampled DSL signals to evaluate amplification circuitry performance. Claim 49 states:

A system for improving transmission of DSL signals, the system comprising:

- means for generating control signals;
- means for transmitting the control signals and DSL signals;
- means for amplifying the DSL signals;
- means for processing the control signals;

means for sampling DSL signals in accordance with the processed control signals; and

means for processing the sampled DSL signals to evaluate the means for amplifying. (Original)

In support of the rejection, the Office Action states:

As per claim 49 Shenoi discloses . . . **means for sampling DSL signals** in accordance with the processed control signals (**column 8 lines 57-67**); and **means for processing the sampled DSL signals to evaluate the means for amplifying (column 8 lines 57-67).**

Office Action, 06/28/05, p. 14 (emphasis added).

Applicant respectfully disagrees with the Office Action's characterization of the cited reference because Shenoi does not disclose means for sampling DSL signals. Furthermore, Shenoi does not disclose means for processing the sampled DSL signals to evaluate the means for amplifying.

In view of the above distinction, Shenoi fails to teach every element of claim 49. Therefore, Shenoi does not anticipate claim 49 because Shenoi fails to disclose at least

mean for sampling and mean for processing, as recited in the claim. Given that Shenoi does not anticipate claim 49, Applicant respectfully asserts that claim 49 is patentable over the cited reference and requests that the rejection of claim 49 under 35 U.S.C. § 102(e) be withdrawn.

Provisional Obviousness-Type Double Patenting

Claims 1 stands provisionally rejected under obviousness-type double patenting as being unpatentable over claim 1 of copending U.S. Patent Application No. 10/071,980. In particular, the Office Action states that claim 1 of the present application is not patentably distinct from copending claim 1 of the because "claim 1 recited less limitations [than copending claim 1] using only one loop extender.

Given the similarity between provisional rejections under obviousness-type double patenting and obviousness rejections under 35 U.S.C. § 103, the analysis employed to evaluate such rejections is the same. M.P.E.P. § 804(II)(B)(1). In order to establish a *prima facie* case of obviousness-type double patenting, the Office Action must clearly state the differences between the claimed inventions and the obviousness of the claim in one application over the claim in another application.

Applicant respectfully disagrees with the Office Action's characterization of copending claim 1. Claim 1 is patentably distinct from copending claim 1 because each claim includes limitations that are not present in the other claim. In support of the provisional rejection, the Office Action essentially states that claim 1 of the present application is a species within the genus of copending claim 1 of the '980 application.

However, the claims of the separate applications do not have a genus-species relationship because each application describes and includes different limitations.

In particular, claim 1 of the present application includes a loop extender with diagnostic functionality. Copending claim 1 of the '980 application does not include such a limitation. Similarly, copending claim 1 of the '980 application includes a central office controller/power supply and a loop extender communications/power supply, which are not limitations of claim 1 of the present application. Ultimately, the inclusion of these distinct limitations in each of the claims of the separate applications demonstrates that there is not a genus-species relationship between the claims of the individual applications.

Furthermore, the claims are not obvious in light of each other. In fact, the Office Action fails to establish a *prima facie* case of obviousness because the Office Action does not show how claim 1 of the present application might be obvious in light of the copending claim 1 of the '980 application. At a minimum, the Office Action would have to establish this purported relationship in order to properly support an obviousness-type double patenting rejection.

Given that the Office Action fails to establish a *prima facie* case of obviousness, the obviousness-type double patenting rejection should be withdrawn. Furthermore, copending claim 1 of the '980 application does not render claim 1 of the present application obvious because each claim includes nonobvious limitations that are not included in the other claim. Accordingly, Applicant respectfully asserts that claim 1 of the present application is patentably distinct from the copending claim 1 of the '980

application. Therefore, Applicant respectfully request that the provisional double patenting rejection be withdrawn.


CONCLUSION

It is respectfully submitted that in view of the remarks set forth herein, the rejections have been overcome. Applicants reserve all rights with respect to the application of the doctrine equivalents. If there are any additional charges, please charge them to our Deposit Account No. 02-2666. Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Respectfully submitted,

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